

Syracuse University

SURFACE

Center for Policy Research

Maxwell School of Citizenship and Public
Affairs

2000

Health Promotion for Older Adults: What Is the Potential?

Linda P. Fried

Johns Hopkins University Schools of Medicine and Public Health; Johns Hopkins Center on Aging and Health

Follow this and additional works at: <https://surface.syr.edu/cpr>



Part of the [Geriatrics Commons](#)

Recommended Citation

Fried, Linda P., "Health Promotion for Older Adults: What Is the Potential?" (2000). *Center for Policy Research*. 26.

<https://surface.syr.edu/cpr/26>

This Working Paper is brought to you for free and open access by the Maxwell School of Citizenship and Public Affairs at SURFACE. It has been accepted for inclusion in Center for Policy Research by an authorized administrator of SURFACE. For more information, please contact surface@syr.edu.

ELEVENTH ANNUAL
HERBERT LOURIE MEMORIAL LECTURE ON HEALTH POLICY
**Health Promotion for Older Adults:
What Is the Potential?**

Linda P. Fried

No. 17/2000

Linda P. Fried, M.D., M.P.H., is Professor of Medicine, Epidemiology, and Health Policy at the Johns Hopkins University Schools of Medicine and Public Health. Dr. Fried is a geriatrician and Director of the Johns Hopkins Center on Aging and Health, a multidisciplinary center of excellence for research and education on aging at the Johns Hopkins Medical Institutions. She leads a research program directed at health promotion and disease and disability prevention in older adults, with approaches ranging from social models to public health and clinical interventions. She is co-principal investigator of the longitudinal Women's Health and Aging Study, a major effort by the National Institute on Aging (NIA) to better understand the causes and course of disability for older women. She has published numerous articles on prevention and health promotion in older adults in leading medical and public health journals, and she is on the editorial board of a number of journals dedicated to the health of older adults, including *Health After 50: The Johns Hopkins Medical Letter*.

The Policy Brief series is a collection of essays on current public policy issues in aging, health, income security, metropolitan studies, and related research done by or on behalf of the Center for Policy Research (CPR) at the Maxwell School of Citizenship and Public Affairs.

Single copies of this publication may be obtained at no cost from the CPR Web site at <<http://www-cpr.maxwell.syr.edu>> or from the Center for Policy Research, 426 Eggers Hall, Syracuse, NY 13244-1020.

© 2000, Syracuse University. This publication may be distributed freely for educational and researcher uses as long as this copyright notice is attached. No commercial use of this material may be made without express written permission.

Policy Brief

ELEVENTH ANNUAL

HERBERT LOURIE MEMORIAL LECTURE ON HEALTH POLICY

**Health Promotion for Older Adults:
What Is the Potential?**

Linda P. Fried

Health Promotion for Older Adults: What Is the Potential?

As a greater number of people reach old age, medicine is challenged to develop new approaches to this population. Health promotion, not just treatment of disease but improving the quality of life for older persons, must play a role.

Demography of an Aging Population

The U.S. population is aging. By the year 2030 it is anticipated that one-fifth of the U.S. population will be 65 years or older. In 1900 only 4 percent of the U.S. population was 65 or older, so in this one century the proportion of the population that is older has increased phenomenally. This is a major demographic revolution. Preparing for this population shift is indeed “a compelling demographic imperative.”

What caused this shift? A central cause is that life expectancy has increased very dramatically in this century. In 1900 the average life expectancy at birth was to live to about 48 years. In 1997 it grew to nearly 80 years for women and 74 years for men. And if you live to 65, as most people are now doing, you can expect to live another 15 to 17 years on average. So people can expect to live longer lives.

However, with aging come health concerns. What happens to individuals in terms of health status as they get older, and what are the implications for health care needs? Where should we focus to get the biggest benefits in terms of health promotion?

Health Status of Older Adults

Overall, we have learned a tremendous amount over the last 25 years about the components of health as people get older, and

Lourie Memorial Lecture Policy Brief

what modifies their health. We know, for example, that the health status of older adults is a composite of the chronic diseases that they may have, of how many chronic diseases are present, and of underlying physiological changes of aging, such as a decline in muscle strength, that appear to be an intrinsic part of the aging process. Disability can result from chronic disease. In addition, people are more susceptible to acute illnesses and injuries as they get older.

Chronic Disease

According to the Centers for Disease Control and Prevention, the likelihood of chronic disease increases quite dramatically with age. One example is the incidence of arthritis: only 5 percent of people aged 17 to 44 report arthritis, but among people aged 45 to 64 about a quarter report arthritis, and it approaches almost 50 percent in people who are 65 years and older. There are similar stepwise increases, as people get older, for heart disease, diabetes, hypertension, visual impairment, and other chronic diseases found in our population.

Some diseases are major causes of mortality. The leading causes of death as people get older are heart disease; cancers, especially lung cancer, colorectal cancer, and breast cancer; lung disease; cerebrovascular disease or stroke; and two acute infectious illnesses, pneumonia and influenza. This is a major change compared to 40 or 50 years ago, when the major causes of death were acute illnesses such as pneumonia and influenza. Now it is chronic disease.

At the same time that chronic diseases are major causes of death, they are also conditions that people also survive with. In fact, the likelihood of living many years with chronic disease has increased. People are living longer and health care is permitting them to survive with major chronic diseases. About half of people 65 and older report arthritis, over 40 percent of older adults report high blood pressure or hypertension, and about a third report heart disease, which means that they have survived a

heart attack or other heart problems. Conditions such as hearing loss are reported by about a third of older adults. Cataracts occur in about 16 percent of older adults and other major conditions such as cancers in 15 percent.

Consequences of Chronic Disease

As a result of these high frequencies of chronic conditions, it is very likely that an older person may have more than one disease. In fact, 80 percent of people who are 65 and older report one or more chronic disease, and half of them report that they have two or more.

What does that mean for a hypothetical individual? Perhaps in their 40s or 50s they might have one bout of pneumonia. They recover from it and are doing fine although, in this example, they may have developed that pneumonia because they smoke. And then, perhaps in their late 50s, after many years of smoking they start to develop emphysema or chronic lung disease, which they also survive with. Unfortunately, they may have a heart attack in their 60s but happily, in this hypothetical example, they survive that as well. So now they are living with the consequences of both lung disease and heart disease. Subsequently, perhaps in their late 60s, they have a stroke, which again, happily, they survive and then live with the consequences of. And then, in their late 70s, they unfortunately die from lung cancer.

The purpose of going through this is threefold: first, to focus on the implications of having two or more chronic diseases and what that might be like for the individual who has to live with them. Second, to point out that all of these diseases could have been caused by the person's history of smoking. And third, to think about the fact that this person was able to live a long life even though they did it in the presence of multiple diseases.

One of the challenges that we face is to think about how, as people are living longer lives, we could perhaps delay the onset of diseases such as these to the latest point in the human lifespan,

Lourie Memorial Lecture Policy Brief

so that people who are living longer lives might not experience those same diseases during that course of time. In that case the same hypothetical individual recovers from pneumonia in their late 40s and then does not experience any other disease until shortly before they die. From a health promotion point of view, this would be a result of success in figuring out how to delay the onset of heart attacks and strokes and lung disease so that the person actually lived without the symptoms or complications of those diseases through their life course. That is the goal in our thinking about how to promote health for older adults and, concurrently, as we struggle over the costs of health care and the solvency of Medicare. How will we pay on an individual basis for the costs of health care, and how can we decrease health care needs for all of us who are surviving longer and longer?

One of the other major health outcomes of chronic disease is disability, or difficulty carrying on important activities in one's daily life. An obvious example might be a stroke, which can compromise an individual's ability to walk or to even speak or think. Forty percent of older adults report limitations in their ability to carry on their daily activities. Disability, and probably its most feared outcome, dependency, are primarily the result of chronic diseases of aging. Disability occurs with increasing likelihood as people get older. Half of disability occurs chronically and progressively as chronic diseases become more severe; the other half occurs "catastrophically" as a result of the acute onset of conditions such as a stroke or a hip fracture.

The most severe disability compromises one's ability to live independently or care for oneself, e.g., bathing and dressing, the basic activities of daily living (ADLs; see definitions below). Prior to that occurring, there are often precursors; for example, difficulty walking predicts who may go on to become disabled in tasks of daily life. Cognitive impairment is a major factor in difficulty managing a household, along with problems walking and using one's hands, and with vision. This information provides us with some of the first insights into the natural history

of how disability occurs as a medical phenomenon and some insights from there into what areas might be targeted to prevent that progression.

We know that the concerns and problems associated with the consequences of chronic disease are profound. For example, in a national survey conducted by the National Center for Health Statistics, about 35 percent of women 65 years and older reported difficulty doing the major tasks that are required to independently run a household: meal preparation, shopping, and other instrumental activities of daily living (IADLs; see definitions below), while 19 percent of men 65 and older reported difficulty in the same areas. Almost one-quarter of women and 19 percent of men aged 65 and older reported difficulty with ADLs. The consequences of chronic disease are of grave concern to the individuals who are affected by them and present great challenges to families in caring for people that they love, to communities in preparing for increasing numbers of older adults in the future, and for us as a society in thinking about how to continue to pay for needed services in a way that will satisfactorily address these health concerns, yet be affordable.

The implications are profound not just in terms of the activity that is affected, but in terms of the number of years that people who are affected can expect to be dependent on others in carrying on basic activities. Sidney Katz and colleagues in the 1980s proposed a concept called *active life expectancy* and, using this concept, suggested as a goal for an aging population to increase the numbers of years that people remain active and able to care for themselves, relative to the numbers of years that they expect to live. At the time he published his article, men at each 5-year age group over 65 could expect to live a third of their life expectancy dependent upon others for help with basic self-care tasks. Women could expect to live about a half of their years above the age of 65 dependent upon others for help in those same tasks. Thus, the implications of chronic disease as people age are quite serious.

Modifying These Consequences

We also know that the likelihood of any of these outcomes is modified by a number of factors. This is a very dramatically different perception than we had 25 years ago, when it was assumed that diminished capacity to perform IADLs or ADLs was an inevitable concomitant of aging and not modifiable.

- **Health habits** affect the likelihood of people getting a chronic disease and of becoming disabled, whatever age the person is. This particularly involves physical activity, nutrition, and smoking.
- **Screening** for people who are at high risk for a number of diseases, such as cancer, makes a tremendous difference in their outcomes, regardless of age.
- **Immunizations** decrease the risk of influenza and pneumonia.
- **Access to health care** makes a difference in terms of outcomes. Health care for diseases that we thought were inevitably fatal, such as heart disease, now can make a tremendous difference in terms of both survival and how well people do.
- **How well people manage their own diseases** affects outcomes, for example, high blood pressure or diabetes.
- **Community services** to support people as they age, to support their ability to take care of themselves or their family's ability to take care of them, also makes a difference not just in their ability to stay in their home over the long run, but also in how well they continue to manage.

The Challenge to Geriatric Medicine

The major focus of geriatric medicine since its inception about a quarter century ago has been on treating frail older adults,

Linda P. Fried

maintaining function in the presence of disability, and preventing adverse health outcomes for at-risk older adults.

I would like to suggest that geriatricians have a responsibility to (1) stretch the definition of what prevention is possible to include the full spectrum of health concerns that affect older adults, and (2) lead clinicians, patients, and health policy experts in redefining what health promotion and prevention should include for an older population.

Twenty-five years ago, even 15 years ago, people were asking, “Is prevention relevant to older adults?” About that time, it was reported that there had been a dramatic decline in the rates of death due to heart disease and stroke across the population—as much as a 60 percent decline in stroke mortality. It was observed that those dramatic declines had occurred in the oldest age groups, as well as in people who were middle-aged, suggesting that the changes in health care and health habits that had been adopted by many people in our population may have made a difference at all ages. This changed our thinking a great deal, and suddenly the question was not *is* prevention relevant but *what* prevention might be relevant.

Preventive Health Care

There are three major types of preventive health care.

- **Primary prevention** is defined as intervention to prevent the occurrence of disease or injuries in the first place. This is accomplished by identifying people who might be at risk for developing specific diseases and intervening to prevent them.
- **Secondary prevention** is intervention when somebody has an early condition to prevent it from progressing and developing complications or, in some circumstances, actually curing the condition, even though it has already occurred.

Lourie Memorial Lecture Policy Brief

- **Tertiary prevention** is the realm that geriatricians have traditionally been involved in, the intersection of preventive health care with traditional medicine. It involves intervention to improve the health status of somebody who already has a disease. It could be a classic medical intervention to treat the disease itself, or it could involve putting in place community services to stabilize somebody who has a disease. Ultimately, tertiary prevention focuses on preventing disability and frailty that can result from disease.

These three levels of prevention feature differently in different age groups. Primary prevention is the general focus for children and young adults, tertiary prevention for people who may already have chronic diseases.

Geriatrics has focused very heavily on tertiary prevention. This comes from an honorable tradition of designing geriatric assessment programs that have the sophistication to evaluate some of the sickest older adults who are most at risk of losing independence and to identify interventions that can prevent that loss of independence. Other programs, such as the Program for All-Inclusive Care for the Elderly (PACE program; see definitions below), which is designed to help frail older adults stay in their homes rather than being placed in a nursing home, are also widely considered to be successful and are another hallmark of geriatric medical care.

Even though geriatrics has been thought of as the locus of care for frail older adults and of tertiary prevention, to prevent adverse outcomes for people who have serious chronic disease, a great deal of primary and secondary prevention is also involved. People who have had a stroke, for example, require flu shots because they are at high risk of developing the flu. The semantics become complicated, but that is really primary prevention for someone who may be at very high risk.

Given the perspective of geriatricians in understanding the complexity of health status in older people, it is very important

that geriatricians participate in the discussion of what the full potential of health promotion, disease prevention, and disability prevention might look like for an aging population. We need to develop a broader spectrum of approaches that incorporate the complexity of health status as people get older.

Current Standing Recommendations

Several different groups have made recommendations on screening and health promotion for older adults. The American College of Physicians and the American Society of Internal Medicine have recommended that physicians broadly screen older patients who are at risk for becoming disabled or losing independence, to identify where there might be a problem. This includes, for example, looking at outpatients who are 75 or older to determine whether they're having difficulty in carrying on instrumental activities of daily living, the activities essential to remaining independently in your home. This is one way to think about health promotion, case finding, which is that the physician looks to identify IADL or ADL limitations in patients thought to be at high risk. Screening people who evidence indications of some cognitive impairment, in order to identify it early enough and to see if intervention is possible, is also recommended. This is a classically geriatric approach to screening, which focuses on people who may already be seriously impaired. However, before people develop difficulty in household management or self-care activities, there may be earlier indicator of risk, such as problems with walking. These could be screened for early on, but this approach is not yet part of the standing recommendations.

The other group, typified by the U.S. Preventive Services Task Force of the U.S. Public Health Service, recommends regular, "periodic" screening, perhaps once a year, to detect conditions in people who are asymptomatic, without disease or other health problems, as part of a prevention package. The Task Force currently recommends that all people 65 and older be evaluated by their physician, including screening, counseling, and immunizations. Physicians are to focus on blood pressure;

Lourie Memorial Lecture Policy Brief

identify weight loss or gain; screen for colon, breast, and cervical cancer, as well as vision and hearing impairment; and assess for problem drinking. These conditions were selected because screening for them is demonstrably effective across the adult life span and because many of these conditions, such as visual impairment, are mostly like to cause problems as people get older. In addition, doctors are advised to counsel their patients annually regarding optimal diets and regular physical activity, which has been shown to be effective at all age groups in terms of maintaining strength, health, and function.

Recently the U.S. Preventive Services Task Force also recommended that physicians begin screening to prevent falls in older adults. About one-third of older adults fall in a given year, and although people fall at all ages, the likelihood of falling increases as people get older and their balance may become impaired. As a result of a number of studies by geriatricians, the Task Force added this unique recommendation for people 65 and older.

In addition, it is recommended that people 65 and older receive annual flu shots and a one-time vaccination for pneumococcal pneumonia. There are also specific recommendations for high-risk groups. For example, people living in nursing homes should receive particular immunizations. And although it is not clear what the optimal screening should be for people at risk for cardiovascular disease, physicians are advised to consider screening for cholesterol.

These current recommendations are necessary initial steps for health promotion for older adults. One of the shortcomings of the Task Force's current recommendations for preventive health care, however, is that they are written for persons aged 65 and older who are asymptomatic. We know from the data that only a relatively small fraction of older adults have no chronic disease and no related concerns. For most major diseases, a significant proportion of older adults have already developed them and are candidates for secondary and tertiary, as well as primary,

Linda P. Fried

prevention. Therefore, while the current Task Force recommendations for health promotion are necessary, they are far from sufficient if our goal is to improve health outcomes for all older adults.

*Designing a New Health Promotion Program
for Older Adults*

If we were designing from the outset an optimal program for health promotion for older adults, what health concerns would we include, and what types of interventions might actually match those concerns?

They would span the categories of primary, secondary, and tertiary prevention. We have to maintain our concern to prevent the onset of preventable disease, whether influenza or cancers, through the kinds of screening that are recommended by the U.S. Preventive Services Task Force.

Most older adults are confronted with living with one or more chronic conditions. We need strategies to improve health outcomes associated with those chronic conditions that are already present, which could be described as secondary prevention. And, finally, though a minority of older adults are disabled by chronic diseases, that outcome is responsive to a variety of interventions to decrease the severity of the disability or even to prevent it. Tertiary prevention is critical.

We have the opportunity, at the beginning of the next millennium, to redefine health promotion for older people, not to limit it to guidelines for people who are robust, but to extend it to all older adults.

What Is the potential?

The potential is established in some areas. The U.S. Preventive Services Task Force has included some secondary prevention in their recommendations, screening for specific diseases that occur

Lourie Memorial Lecture Policy Brief

increasingly as people get older and for which there are established data that intervention makes a difference. They include screening for high blood pressure and for specific cancers where, if detected earlier, the outcome is much better, such as colon cancer or breast cancer. We know that screening for visual impairments and initiating the proper therapies make a big difference in terms of vision—and function—for older people. We know that screening to prevent falls makes a large difference in decreasing the likelihood of falling. All of these are established recommendations.

But the existing recommendations fall within a fairly narrow framework when you consider the full spectrum of health concerns that confront older adults, which include a list of other things such as frailty or loss of strength with aging, incontinence (which occurs frequently as people get older and is associated with many of the diseases just described), the presence of multiple diseases (which actually can confer risks in themselves), and being on multiple medications (which can interact with each other).

This sounds like a grim list. However, the news is good in terms of the potential for increasing our ability to treat and to improve each of these concerns. We need to think beyond the prevention of a few established conditions where we know treatment makes a difference and consider the vast spectrum of health concerns that affect older adults and how we can develop health promotion for those.

There's very exciting evidence that these approaches make a difference. The dramatic decline in heart disease and stroke mortality cited earlier is one example. In a recent paper in the *Journal of the American Medical Association*, Hunink and colleagues (1997) reviewed the potential causes for the 30 percent decline in heart disease deaths from 1980 to 1990 and concluded that they resulted from all three types of prevention. They said that a quarter of the decline in heart disease deaths were explained by primary prevention: by cholesterol reduction,

by exercise, and decreasing salt intake across the population. Twenty-nine percent could be explained by secondary prevention, that is, among people who already had a heart attack or other heart disease who then went on to reduce their risk factors for other heart attacks. And, finally, 43 percent of the decrease in heart disease deaths in this country is explained by improvements in the medical care of patients with heart disease, which could also, in the lingo of prevention, be considered secondary and tertiary prevention. All three of those approaches make a difference in terms of outcomes and suggest that even in the oldest age groups the potential is tremendous for improving health as people get older.

Dr. Mary Tinetti and colleagues (1994) have shown that there is great potential for prevention in conditions that are not diseases but are still serious concerns of aging, such as falling. They demonstrated in a multiple risk factor intervention trial, which was clinically based, that by intervening on a number of risk factors, the likelihood of falling was decreased by one-third over a two-year follow-up period. A very dramatic difference for a fairly simple set of interventions, again suggesting that conditions that 10, 20, and 30 years ago we thought were inevitable with aging appear modifiable.

Overall, geriatric approaches to care are actually the health promotion approaches of the future. A few paradigmatic cases, below, describe examples of how that might work.

Three Paradigmatic Cases

Comorbidity

The presence of two or more diseases, or comorbidity, specifically in heart disease and arthritis of the hips or knees, is associated with becoming disabled in walking.

These diseases are not rare conditions. Almost half of older adults report arthritis, and about a third of older adults have heart

Lourie Memorial Lecture Policy Brief

disease; 18 percent, or almost a fifth, have both diseases. Thus, this is a very common co-occurrence as people get older.

What are the implications of having both diseases? Ettinger and colleagues (1994) demonstrated very dramatically that while people who had one of those diseases had a 2- to 4-fold increased risk of developing difficulty walking, the risk for those who had both diseases went up another 3- to 4-fold to being 14 times higher than in people who had neither disease. The occurrence of two diseases together turns out to be a very potent risk factor in terms of whether people develop disability or other consequences of disease. In studies that we have done looking at the co-occurrence of osteoarthritis and heart disease (Ling et al. forthcoming) we have been able to show that the consequences occur in very specific areas, such as walking, and in terms of doing the more demanding tasks of daily life such as shopping. This suggests that if we understood how to prevent the synergy between the two diseases in our treatments, that we might be able to decrease the risk of disability profoundly, just by looking at the interaction between the diseases.

These studies and a number of others suggest that, as an important component of health promotion and the prevention of disability, we need to determine how to prevent the interaction between pairs of diseases that might, because they're both present, be causing problems where neither one would cause problems alone. This will be one of many innovative strategies in health promotion and disability prevention for the future from a geriatric, medical perspective.

Mobility Disability

Mobility disability is an area that is only recently being focused on, and for which there are no current guidelines in terms of health promotion or prevention, but a concern of almost 40 percent of older adults who have some difficulty with their walking.

What can we do from a medical point of view to decrease the likelihood that people who have underlying disease will develop such difficulty? How can we prevent people who are having some difficulty walking from having that progress to really limiting their ability to carry on the activities that are important to them in their lives? That is both secondary prevention and tertiary prevention, with perhaps a little primary thrown in.

Clinicians are very skilled at recognizing the impact of an acute event, such as a stroke, on difficulty or inability to walk. But, in cases where the difficulty walking started slowly and progressed over time, we have very little understanding of how people got there, except to say something like “it’s a result of arthritis of the knees.” But why is it that some people who have arthritis of the knees do wonderfully and never become disabled, and other people develop a profound limitation in their ability to walk? It is something that we have not understood well. A number of groups, including our own, have been working to find the answers. As a result of the knowledge that I hope will really come together in the next two years or so, we are understanding that there is a pre-clinical phase of function and that early declines might be the place we need to target to prevent people from developing walking difficulty at all (Fried 1997).

We know that in the case of the patient who has both arthritis and heart disease, we may need to develop specific interventions to prevent the two diseases affecting each other and increasing the likelihood of mobility difficulty many-fold. Specific conditions increase the likelihood of mobility difficulty, such as injuries and falls, as well as needing bed rest for a while due to the flu or another acute illness. We are developing new approaches to getting people up and moving rapidly after an illness so that they do not become so weak that they lose their ability to walk.

Geriatrics is expert in maximizing function in the face of such walking difficulty, and seeking to minimize the likelihood of it worsening. This kind of tertiary prevention has been the focus to date of most geriatric health care programs. We now need to add

Lourie Memorial Lecture Policy Brief

primary and secondary prevention of mobility disability to this repertoire.

Falls

This is the major area where geriatrics and the current health promotion guidelines from the U.S. Preventive Services Task Force intersect. They recommend screening to prevent falls in older adults, as a result of findings from research of the last 20 years.

Falls research has demonstrated that the number of risk factors that people have is often just as important as which specific risk factors for falling are present. Decreasing the cumulative burden of risk factors has a profound effect in terms of decreasing fall risk. This has been shown now in both clinical studies and in community-based programs such as Group Health in Seattle, where one randomized trial conducted by Wagner and colleagues (1994) showed that a nurse doing a simple screen for fall risk factors in people 70 years and older decreased the likelihood of falling and of developing mobility difficulty over the next year.

One of the risk factors that they intervened on was inactivity, by prescribing exercise programs. We know now that much of the disability that occurs, although it may be precipitated by disease, is worsened by inactivity, and that maintaining strength is extremely important as people get older. While that seems somewhat obvious now, we did not have that information until about five years ago. It came, in part, from research by Fiatarone and colleagues (1994), who showed that even the most frail older adults, people in their 90s who were in nursing homes, could increase their strength dramatically through resistance exercise for strength training. Her study demonstrated that not only could frail older adults increase their strength by as much as 200 percent through strength training, but that, as they got stronger, the amount of their own activity increased by as much as a third. We now know that is also true for middle-aged women who have gone through similar kinds of strength training programs. When

they got stronger they also increased their physical activity spontaneously. This suggests that a certain level of strength may be necessary for people to feel able to be active. Scientists are now developing new approaches to increasing physical activity by doing basic strengthening, supporting the premise that people who feel better are able to take on other activities.

Subsequent to Fiatarone's early study, the benefits of resistance training for older individuals has received considerable attention. Indeed, many community senior centers are offering weight training classes to the general public on the basis that increased strength will lead to increased performance of everyday tasks and healthier aging. Current research by Lori Ploutz-Snyder and colleagues (1999) at Syracuse University is evaluating a critical and practical question in this area, which may have an impact on public policy. They are asking: how strong do individuals need to be to perform optimally on everyday tasks such as walking, climbing stairs, and raising from a chair? Their research shows clear thresholds of quadriceps femoris (leg) strength, below which everyday function is impaired. Logically, the threshold is slightly more than the person's body weight. In other words, if an individual's body weight is 150 lbs., then leg strength needs to exceed 150 lbs. in order for the person to walk up and down stairs, rise from a chair without difficulty, and walk at appropriate speeds. Strength gains in excess of the body weight-corrected threshold are not likely to lead to significant improvements in everyday function, although there may be other benefits. These data are likely to be useful in determining goals and eligibility criteria for intervention programs designed to help elders retain or regain independence. Surprisingly, at this date, such goals and eligibility criteria do not exist.

These exercise examples suggest that exercise is important for all older adults, but perhaps the type or amount of exercise prescribed, or the way you would go about it, would vary depending upon your health status. There is early evidence to support this from a number of studies, but it is still not clear what

the prescription should be for different groups. Over the next five or ten years we will begin to understand what the optimal exercise prescription should be, not just as people age but for people in different kinds of health at older ages.

A New Paradigm for Health Promotion for Older Adults

As the population gets older, there is a wide spectrum of health status among individuals. Many people are not just living longer, but living healthy and robust for many years, and they require a different kind of approach to health promotion from people who have one or more chronic diseases, as well as from the frail older adult who may be profoundly disabled and dependent. We need to develop health promotion programs that address the whole breadth of health status associated with an older population. Geriatricians should be part of the group that is designing a full package of health promotion, in large part because of their appreciation of the complexity of health status in older adults and their insights into opportunities for new approaches to prevention.

Geriatrics started out as a model of care that was heavily focused on tertiary prevention, on maximizing function and preventing the loss of independence in people who were frail and disabled. The health promotion community in this country, which is led by the U.S. Preventive Services Task Force, has focused very much on health promotion for robust and asymptomatic individuals and has led the way in expanding the guidelines for health promotion to include people who are 65 and older. The dramatic opportunity we have with the aging of the population is to bring those two perspectives together, to develop a health promotion strategy for all older adults that spans the full spectrum of health concerns, not just for healthy active older adults, not just for the frailest of older adults, but also for the majority of older adults who are living and often living well with one or more chronic diseases,

for whom the challenge is to promote their health over the long run and minimize the consequences of these diseases.

Definitions

ADLs, or activities of daily living, include six personal care activities: bathing, dressing, going to the toilet, transferring from bed to chair, continence, and feeding. The Index of Independence in Activities of Daily Living was introduced by Sidney Katz and colleagues in 1963.

IADLs, or instrumental activities of daily living, include six home-management activities; preparing meals, shopping for personal items, money management, using the telephone, doing light housework, and doing heavy housework. These measures are part of the Physical Self-Maintenance Scale introduced by M. Powell Lawton and Elaine Brody in 1969.

PACE, the Program for All-Inclusive Care for the Elderly, a demonstration program sponsored by Medicare, has grown out of the highly regarded On Lok program. On Lok is a demonstration of integrated acute care and long term care for nursing-home-level, low-income clients in San Francisco's Chinatown. Many states are currently considering creating PACE-like organizations within the state with the mission of providing either long-term care (LTC) alone or LTC plus acute care to its Medicaid clientele. In 1996 (the most recent year for which figures are available), 2,700 enrollees participated in ten PACE sites and On Lok. This number will likely grow as more states use the new state plan option authorized under the Balanced Budget Act of 1997 (states no longer need to apply for a special demonstration waiver to implement PACE). From ASPE's Disabilities and Managed Care Web Site, at <http://managedcare.hhs.gov/program_descriptions/medicare/pace.htm> accessed January 4, 2000.

References

- Administration on Aging. 1999. *A Profile of Older Americans: 1999*. Washington, DC: U.S. Department of Health and Human Services. <<http://pr.aoa.gov/aoa/stats/profile/>>, accessed January 4, 2000.
- American Society of Physicians-American Society of Internal Medicine, <<http://www.acponline.org/index.html>>, accessed January 4, 2000.
- Center for the Advancement of Health. 2000. "Health Behavior Change in Managed Care: A Status Report." Washington, DC: CAS. Executive summary online at <<http://www.cfah.org/executivesummary.pdf>>, accessed February 2, 2000.
- Ettinger, W. H. Jr., L. P. Fried, T. Harris, L. Shemanski, R. Schulz, and J. Robbins. 1994. "Self-Reported Causes of Physical Disability in Older People: The Cardiovascular Health Study. CHS Collaborative Research Group." *Journal of the American Geriatrics Society* 42:1035-1044.
- Fiatarone, M. A., E. F. O'Neill, N. D. Ryan, K. M. Clements, G. R. Solares, M. E. Nelson, S. B. Roberts, J. J. Keyahias, L. A. Lipsitz, and W. J. Evans. 1994. "Exercise Training and Nutritional Supplementation for Physical Frailty in Very Elderly People." *The New England Journal of Medicine* 330:1769-1775.
- Fried, L. P., K. Bandeen-Roche, J. D. Kasper, and J. M. Guralnik. 1999. "Association of Comorbidity with Disability in Older Women: The Women's Health and Aging Study." *Journal of Clinical Epidemiology* 52:27-37.
- Fried, L. P., and J.M. Guralnik. 1997. "Disability in Older Adults: Evidence Regarding Significance, Etiology, and Risk." *Journal of the American Geriatrics Society* 45:92-100.

- Hunink, M. G., L. Goldman, A. N. Tosteson, M. A. Mittleman, P. A. Goldman, L. W. Williams, J. Tsevat, and M. C. Weinstein. 1997. "The Recent Decline in Mortality from Coronary Heart Disease, 1980–1990. The Effect of Secular Trends in Risk Factors and Treatment." *Journal of the American Medical Association* 277:535-542.
- Katz S., L. G. Branch, M. H. Branson, J. A. Papsidero, J. C. Beck, and D. S. Greer. 1983. "Active Life Expectancy." *The New England Journal of Medicine* 309:1218-1224.
- Ling, S. M., J. M. Bathon, M. Y. Fan, K. Bandeen-Roche, and L. P. Fried. Forthcoming. "Disability Associated with Comorbid Osteoarthritis and Heart Disease."
- National Academy on an Aging Society. 1999. "Chronic Conditions: A Challenge for the 21st Century." Data Profile Number 1. Washington, DC: Gerontological Society of America. Subsequent Profiles focus on particular conditions such as hearing impairments, heart disease, and diabetes. Others will examine topics such as risk factors for chronic conditions, and caregiving for the chronically ill and disabled. Profiles will be published monthly during the year 2000. <<http://www.agingsociety.org/profiles.htm>>, accessed January 5, 2000.
- National Center for Health Statistics. *Health, United States, 1999, with Health and Aging Chartbook*. Hyattsville, MD. <<http://www.cdc.gov/nchswww/data/hs99.pdf>>, accessed January 4, 2000.
- Ploutz-Snyder, L. L., T. Manini, and R. J. Ploutz-Snyder. 1999. "When Does Age Related Strength Loss Begin to Impair Muscle Function?" *Medicine and Science in Sports and Exercise* 31(5): S386.
- Tinetti M. E., D. I. Baker, G. McAvay, E. B. Claus, P. Garrett, M. Gottschalk, M. L. Koch, K. Trainor, and R. I. Horwitz. 1994. "A Multifactorial Intervention to Reduce the Risk

Lourie Memorial Lecture Policy Brief

of Falling among Elderly People Living in the Community.” *The New England Journal of Medicine* 331:821-827.

U.S. Preventive Services Task Force. 1996. *Guide to Clinical Preventive Services*, 2nd Edition. Washington, DC: U.S. Department of Health and Human Services.
<<http://odphp.osophs.dhhs.gov/pubs/guidecps/>>, accessed January 4, 2000.

Wagner, E. H., A. Z. LaCroix, L. Grothaus, S. G. Leveille, J. A. Hecht, K. Artz, K. Odle, and D. M. Buchner. 1994. “Preventing Disability and Falls in Older Adults: A Population-Based Randomized Trial.” *American Journal of Public Health* 84:1800-1806.